



Claim 1. A process for the preparation of organically modified aerogels with permanently hydrophobic surface groups, comprising:

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- introducing a lyogel into a reactor;
 - washing the lyogel introduced into the reactor in step a) with an organic solvent;
 - surface-silylating the lyogel obtained in step b) with a surface-silylating agent to produce a surface-silylated lyogel and
 - drying the surface-silylated lyogel obtained in step c) to obtain an aerogel,

wherein the surface-silylating agent in step c) comprises a disiloxane of formula I



wherein the residues R, independently of one another, identically or differently signify in each case a hydrogen atom or a nonreactive organic residue that is linear, branched, cyclic, saturated or unsaturated, or aromatic or heteroaromatic.

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Claim 11. A process in accordance with claim 1 wherein the surface-silylating agent in step c) comprises symmetrical disiloxane.

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Claim 13. A process in accordance with claim 1 wherein the surface-silylating agent in step c) is hexamethyldisiloxane.

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Claim 19. A process in accordance with claim 1 wherein, prior to step c), the lyogel is washed with a solution of an orthosilicate capable of bringing about condensation, of formula $R^1_4-nSi-(OR^2)_n$ wherein $n = 2$ through 4 and R^1 and R^2 , independently of one another, are hydrogen atoms, linear or branched C_1 - C_4 alkyl residues, cyclohexyl residues or phenyl residues.

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Claim 21. A process in accordance with claim 10 wherein the organic solvent in step b) is selected from aliphatic alcohols, ethers, esters and ketones.